

ANOPILOGNATHUS HILLERI SP. NOV. (COLEOPTERA: SCARABAEIDAE:
RUTELINAE) FROM SOUTHEASTERN QUEENSLAND AND NOTES ON
A. FLINDERSENSIS CARNE

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Anoplognathus hilleri is described from both sexes collected in Cooloolo National Park, SEQ. The adpressed white setae on the dorsal surface, the general shape of the clypeus of both sexes and of the aedeagus, and the black spots on the elytra clearly place *A. hilleri* with the *A. velutinus* species-group. *A. hilleri* differs from both *A. velutinus* and *A. flindersensis* in the detailed shape of the aedeagus and in colour. A further specimen of *A. flindersensis* Carne is also noted. □ *Anoplognathus hilleri*, Rutelinae, Scarabaeidae, Coleoptera.

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Anoplognathus Leach was last revised by Carne (1957) who recognised 32 species. *A. antiquus* Arrow has since been transferred to *Trioplognathus* Ohaus (junior synonym of *T. griseopilosus* (Ohaus)) (Carne, 1958) and four further species have been described (Carne, 1981; Allsopp and Carne, 1986). Additional distribution records for *Anoplognathus* spp. were given by Carne (1958, 1981), Carne and Monteith (1971), Allsopp (1975, 1987), Monteith (1986), Allsopp and Lloyd (1987), and De Baar and Hockey (1987). The majority of species occur in coastal and subcoastal eastern Australia with only four species recorded from the arid interior. One species is known also from Papua New Guinea.

This paper describes a previously unknown species collected in southeastern Queensland and gives notes on a further specimen of *A. flindersensis* Carne. The following abbreviations are used for collections: AH = A. Hiller collection, Mt Glorious; ANIC = Australian National Insect Collection, Canberra; PGA = P.G. Allsopp collection, Bundaberg; QDPI = Queensland Department of Primary Industries, Brisbane; QM = Queensland Museum, Brisbane; RIS = R.I. Storey collection, Mareeba.

Anoplognathus Leach

Anoplognathus Leach, 1815, p. 43; Carne, 1957, p. 88, 1958, p. 181, 1981, p. 289; Allsopp and Carne, 1986, p. 99. Type species *Melolontha viridiaeneus* Donovan, 1805; designated by Carne, 1957, p. 93.

Paranonca Castelnau, 1840, p. 143; Lansberge, 1873, p. 86.

Anoplognathus hilleri sp. nov.
(Figs 4-8)

MATERIAL EXAMINED

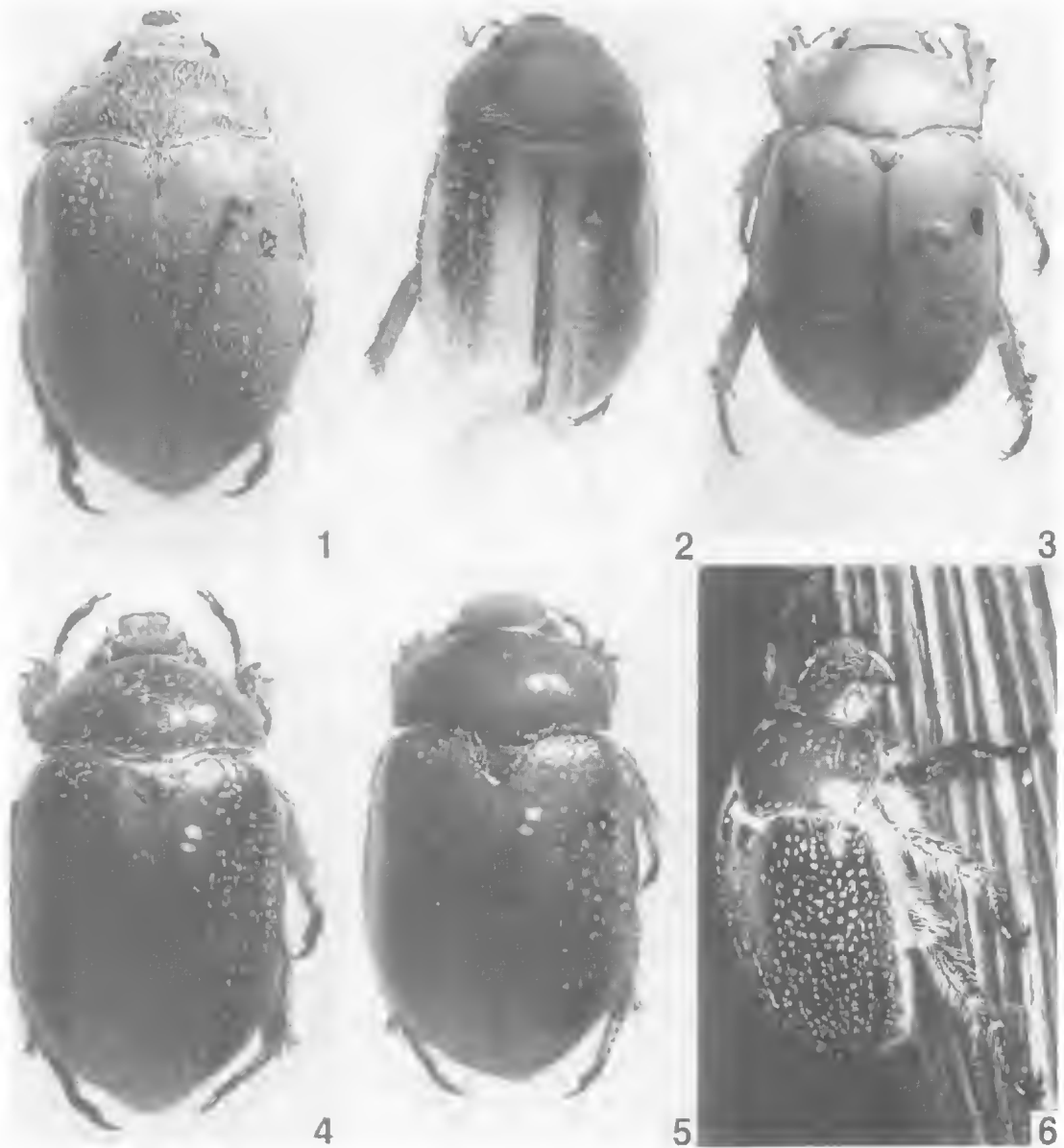
HOLOTYPE: QM T11289 ♂, Cooloolo National Park, Queensland (153°5'E, 26°10'S), 15.ix.1988, A. and K. Hiller, to UV light.

PARATYPES: 2 ♂♂, same data as holotype; 14 ♂♂, 1 ♀, same data as holotype except 28.ix-1.x.1988; 1 ♂, Cooloolo, 21.ix.1987. K. and T. Thomas; in AH, ANIC, PGA, QDPI, QM, RIS.

DESCRIPTION

Male: Total length 23.5-26.5 mm.

Head, pronotum, scutellum, pydigmium, legs and ventral surface red-brown; elytra red-brown to nearly black with broad longitudinal band of yellow-brown either side of sutural interval but narrower and less defined towards apex (Figs 4,6), elytra in paler specimens red-brown; all adpressed setae white. Labrum triangular, apex rounded, surface densely punctate with long setae except scattered short setae on smoother apex. Clypeus with surface of anterior face with micropunctures and scattered long setae arising from larger punctures, anterior face 2.4 times as wide as deep; dorsal surface rugulose with flattened adpressed setae, anterior margin slightly convex, lateral margins parallel near base then sharply curved and tapering to reflexed anterior margin, 1.7 times as wide across base as mid length; clypeofrontal suture posteriorly sinuate



FIGS 1-6. Dorsal view of *Anoplognathus* spp. 1 - *A. velutinus*, ♂; 2 - *A. flindersensis*, holotype ♂; 3 - *A. flindersensis*, paratype ♀; 4 - *A. hilleri*, holotype ♂; 5 - *A. hilleri*, paratype ♀; 6 - *A. hilleri*, living ♂ (photo, A. Hiller).

in middle. Frons with large punctures becoming smaller posteriorly, some punctures with single flattened adpressed seta; ocular canthi with dense erect setae. Maxillary palps conspicuous, segment 3 longer than segments 1 and 2 combined, segment 3 with large longitudinal concavity on upper side. Antennae 10-segmented;

club 3-segmented, 2.6 mm long and about as long as segments 2-7 combined. Labium with long dense setae near base, apex glabrous. Pronotum punctate with sparse irregularly-distributed adpressed setae, with faintly rugose impunctate median stripe; 1.6 times as long as wide; anterior and lateral margins defined by obvious ridges,

posterior margin weakly bilobed in median third where ridge absent; anterior angles slightly obtuse, posterior angles distinctly obtuse; long setae arising from beneath posterior margin, denser and longer opposite scutellum. Scutellum with flattened adpressed setae, denser on lateral edges. Elytra with surface conspicuously punctate, coarsely rugose near apices, almost glabrous along sutural interval, elsewhere punctures with 1-7 adpressed setae (average 4 to 6); apices contiguous, sutures slightly produced with series of short sharp spinules; epipleurae only visible on posterior half, glabrous. Ventral surface with dense long erect white setae. Post-coxal prosternal process absent. Mesosternal process acute, slightly depressed away from body anteriorly, apex almost glabrous and level with hind margin of fore coxae. Fore tibiae broad, evenly tridentate with teeth at less than

right angles to major axis, with white scales dorsally and fine reddish-brown setae on inner margins; mid and hind tibiae with mixture of scattered long reddish or white setae; hind tibial spurs separated by 2 large and 1 smaller ciliae. Ventrites 1-5 with dense white setae and scattered longer white setae; sternite 6 with reduced vestiture, almost bare in middle, slender pale yellow setae across median third of posterior margin. Pygidium finely rugulose, with uniform coating of white setae, longer erect pale yellow setae near posterior margin; posterior margin with continuous ridge, slightly truncated in middle. Aedeagus similar to that of *A. velutinus* Boisduval and *A. flindersensis* Carne but with a more rounded nodule about halfway along outer edge (Figs 7-8).

Female (Fig. 5): Total length 26 mm.

Head, pronotum, scutellum, pygidium, legs



FIGS 7-8. *Anoplognathus hilleri* ♂, parameres. Scale line = 1 mm.

and ventral surface red-brown, pronotum with faint dark spot near mid lateral margin; elytra dark yellow-brown with black spot posterior to humerus. Dorsal surface of clypeus more finely punctate, glabrous, anterior margin almost straight, only very slightly reflexed, lateral margins convex, 2.1 times as wide across base as mid length. Frons more finely punctate, glabrous except for few adpressed setae across base. Antennal club 2.0 mm long. Pronotum with few adpressed setae, mainly on posterior margin. Otherwise as male.

COMMENTS

The species is named after Anthony Hiller of Mt Glorious who went to great lengths to obtain the two series.

The adpressed white setae on the dorsal surface, the general shape of the clypeus of both sexes and of the aedeagus, and the black spots on the elytra clearly place *A. hilleri* with the *A. velutinus* species-group (Carne, 1957). *A. hilleri* differs from both *A. velutinus* and *A. flindersensis* in the detailed shape of the aedeagus (Figs 7-8) and in colour (Figs 1-6).

A. hilleri keys to *A. velutinus* in Carne's (1957) key. It and *A. flindersensis* can be incorporated into the key by deleting couplet 2 and inserting the following:

2(1). Dorsal surface of body with adpressed white scales (*velutinus* species-group).....2a

Dorsal surface of body lacking adpressed white scales.....3

2a(2). Head and pronotum red-brown, pronotum of males without black spots near lateral margins; elytra of males red-brown to nearly black with broad longitudinal band of yellow-brown either side of sutural interval, in pale specimens no indication of black humeral spot; southeastern Queensland.....*hilleri* Allsopp

Head and pronotum yellowish-brown, pronotum with black spot near each lateral margin, elytra of males with black humeral spot or longitudinal brownish-black streak extending from anterior margins and becoming progressively paler.....2b

2b(2a). Elytral punctures with 1-12 scales (average 5-6); elytra of both sexes with black humeral spot; southeastern Australia.....*velutinus* Boisduval

Elytral punctures with 0-3 scales; elytra of males with longitudinal brownish-black streak extending from anterior margins and becoming progressively paler; Flinders Ranges, South Australia.....*flindersensis* Carne

The two series were taken in a sandy, dry area with low shrubs and 3-4 *Eucalyptus* spp. and *Casuarina* sp. as overstorey but bordering a *Gahnia* (swordgrass) swamp of at least 0.5 ha. The surrounding eucalypts were searched during the day following the capture of each of the series in an attempt to locate feeding trees but no beetles or evidence of feeding were seen. When collected all specimens had no food in their guts and the female had apparently laid all her eggs. This indicates that the species flies in early September. This early flight period appears characteristic of the *velutinus* species-group; *A. velutinus* is known from September in south Queensland (Carne, 1957) and *A. flindersensis* from mid-October in South Australia (Carne, 1981). Most other *Anoplognathus* spp. fly during summer.

The three species of the *velutinus* species-group have allopatric distributions (*A. hilleri* occurs north of the known northern limit of *A. velutinus* at Caloundra (Carne, 1957)).

Anoplognathus flindersensis Carne (Figs 2-3)

Anoplognathus flindersensis Carne, 1981, p. 290.

ADDITIONAL MATERIAL EXAMINED

South Australia: 1♂, Angorichina Hostel, 7 km E of Parachilna, 23.x.1978, E.B. Britton, in ANIC.

COMMENTS

A. flindersensis was described from Wilpena Pound in the Flinders Ranges. This new specimen comes from the western edge of the Flinders Ranges, c. 50 km NNW of the type locality. The black elytral streak is not as well defined as in males of the type series, but there is a well-defined black humeral spot.

ACKNOWLEDGEMENTS

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LITERATURE CITED

- ALLSOPP, P.G. 1975. Scarabaeidae collected in light traps at St. George, Brookstead and Gatton, Queensland. *Australian Entomological Magazine* 2: 69-71.
1987. New records of scarab beetles (Coleoptera: Scarabaeidae) from central Queensland. *Queensland Naturalist* 28: 87-8.
- ALLSOPP, P.G. AND CARNE, P.B. 1986. *Anoplognathus victor* sp. n. (Coleoptera: Scarabaeidae: Rutelinae) from west Queensland. *Journal of the Australian Entomological Society* 25: 99-101.
- ALLSOPP, P.G. AND LLOYD, R.J. 1987. New records of Scarabaeidae (Coleoptera) from central Australia. *Australian Entomological Magazine* 13: 71-6.
- CARNE, P.B. 1957. A revision of the ruteline genus *Anoplognathus* Leach (Coleoptera: Scarabaeidae). *Australian Journal of Zoology* 5: 88-145.
1958. A review of the Australian Rutelinae (Coleoptera: Scarabaeidae). *Australian Journal of Zoology* 6: 162-240.
1981. Three new species of *Anoplognathus* Leach, and new distribution records for poorly known species (Coleoptera: Scarabaeidae: Rutelinae). *Journal of the Australian Entomological Society* 20: 289-94.
- CARNE, P.B. AND MONTEITH, G.B. 1971. Three little-known species of Christmas beetle. *News Bulletin of the Australian Entomological Society* 7: 61-3.
- CASTELNAU, F.L. 1840. 'Histoire naturelle des Insectes Coléoptères, avec une introduction renfermant l'anatomie et la physiologie des animaux articulés, par M. Brullé. Tome deuxième.' (Duménil: Paris).
- DE BAAR, M. AND HOCKEY, M.J. 1987. Additional records for Queensland *Anoplognathus* (Coleoptera: Scarabaeidae: Rutelinae). *News Bulletin of the Entomological Society Queensland* 14: 153-4.
- LANSBERGE, J.G.W. VAN. 1873. Notice sur la *Paranonca prasina*, Castelnau. *Annales de la Société entomologique de Belgique* 16: 195-6.
- LEACH, W.E. 1815. 'The zoological miscellany; being descriptions of new, or interesting animals' Vol. 2. (Nodder & Son: London).
- MONTEITH, G.B. 1986. Insects from Kroombit Tops, Queensland, with some results of a site survey of Coleoptera. *Queensland Naturalist* 27: 27-34.

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